**Facility Well Name** Northern (Cunningham) WIW #3 **UIC Permit #** KS-05-151-003 **Month** November **Year** 2023

**Submitted** 12/01/2023 **Approved** 12/28/2023 **KOLAR Document ID** 1739487

# Class I-V Injection Well Monthly Monitoring

## Summary of Monthly Report

**Number of days injection occurred:** 4

**Barrels per Day Maximum:** 4,000

| | | | Annulus Pressure psig min 60 | | Injection Pressure | | |
|---|---|---|---|---|---|---|---|
| | Injection Volume Barrels per Day | Injection Rate Barrels per Minute | Gauge psig | Cont. Record psig | Gauge psig | Cont. Record psig | Amount Added to Seal Pot |
| Monthly Average | 2 | 0.03 | 106 | 106 | -23.1 | -24.1 | 0 |
| Monthly Maximum | 38 | 0.31 | 109 | 107 | -22.0 | -23.0 | 0 |
| Monthly Minimum | 0 | 0.00 | 105 | 105 | -25.0 | -25.0 | 0 |
| Monthly Total | 67 | | | | | | 0 |

## Summary of Continuous Recorder Data

| Maximum Annulus Pressure psig | Minimum Annulus Pressure psig | Maximum Injection Pressure psig | Minimum Injection Pressure psig |
|---|---|---|---|
| 111.30 | 95.72 | -16.11 | -29.35 |

**Comments:**

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# Daily Recorder Data

| Day | Time<br>24 hr | Injection Volume<br>Barrels Per Day | Injection Rate<br>Barrels Per Minute | Annulus Pressure (Gauge)<br>psig | Annulus Pressure (Continuous Recorder)<br>psig | Injection Pressure (Gauge)<br>+ / - | Injection Pressure (Continuous Recorder)<br>+ / - | Seal Pot Fluid Level<br>inches | Type of Fluid Added to Seal Pot | Amount of Fluid Added to Seal Pot<br>gallons | Initials of Collector of Field Recordings | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10:10 | 0.00 | 0.00 | 105 | 105.2 | -23 | -25.0 | 17 | | 0 | HS | | |
| 2 | 09:45 | 0.00 | 0.00 | 105 | 105.4 | -23 | -25.0 | 17 | | 0 | HS | | |
| 3 | 11:00 | 0.00 | 0.00 | 105 | 105.8 | -22 | -24.0 | 17 | | 0 | HS | | |
| 4 | 09:15 | 0.00 | 0.00 | 106 | 105.9 | -23 | -25.0 | 17 | | 0 | HS | | |
| 5 | 10:10 | 0.00 | 0.00 | 106 | 106.0 | -23 | -24.0 | 17 | | 0 | GN | | |
| 6 | 10:27 | 1.24 | 0.12 | 105 | 106.5 | -24 | -25.0 | 17 | | 0 | BD | | |
| 7 | 09:10 | 0.00 | 0.00 | 106 | 106.3 | -24 | -24.0 | 17 | | 0 | BD | | |
| 8 | 08:40 | 0.00 | 0.00 | 107 | 106.5 | -23 | -24.0 | 17 | | 0 | BD | | |
| 9 | 14:00 | 0.00 | 0.00 | 107 | 106.5 | -23 | -23.0 | 17 | | 0 | BD | | |
| 10 | 13:10 | 0.00 | 0.00 | 106 | 106.4 | -23 | -23.0 | 17 | | 0 | GB | | |
| 11 | 13:19 | 0.00 | 0.00 | 106 | 106.5 | -23 | -23.0 | 17 | | 0 | GB | | |
| 12 | 13:05 | 0.00 | 0.00 | 106 | 106.5 | -23 | -23.0 | 17 | | 0 | GB | | |
| 13 | 10:30 | 26.24 | 0.31 | 106 | 105.1 | -24 | -24.0 | 17 | | 0 | AB | | |
| 14 | 07:55 | 0.00 | 0.00 | 105 | 105.1 | -24 | -25.0 | 17 | | 0 | AB | | |
| 15 | 15:40 | 0.00 | 0.00 | 106 | 107.2 | -23 | -23.0 | 17 | | 0 | AB | | |
| 16 | 09:15 | 0.00 | 0.00 | 107 | 106.4 | -23 | -24.0 | 17 | | 0 | DV | | |
| 17 | 09:00 | 0.00 | 0.00 | 108 | 106.2 | -22 | -24.0 | 17 | | 0 | DV | | |
| 18 | 08:35 | 0.00 | 0.00 | 108 | 106.1 | -22 | -24.0 | 17 | | 0 | DV | | |
| 19 | 10:00 | 0.00 | 0.00 | 107 | 106.7 | -23 | -24.0 | 17 | | 0 | AB | | |
| 20 | 09:43 | 38.14 | 0.31 | 109 | 106.5 | -23 | -23.0 | 17 | | 0 | JJ | | |
| 21 | 09:36 | 0.00 | 0.00 | 105 | 104.5 | -25 | -23.0 | 17 | | 0 | CWA | | |
| 22 | 09:45 | 0.00 | 0.00 | 106 | 105.5 | -25 | -25.0 | 17 | | 0 | CWA | | |
| 23 | 08:32 | 0.00 | 0.00 | 105 | 105.9 | -25 | -24.0 | 17 | | 0 | JCJ | | |
| 24 | 11:00 | 0.00 | 0.00 | 107 | 106.3 | -24 | -25.0 | 17 | | 0 | JCJ | | |
| 25 | 11:00 | 0.00 | 0.00 | 106 | 106.0 | -22 | -25.0 | 17 | | 0 | JCJ | | |
| 26 | 11:04 | 0.00 | 0.00 | 106 | 106.1 | -22 | -25.0 | 17 | | 0 | JCJ | | |
| 27 | 13:50 | 1.24 | 0.29 | 106 | 105.9 | -23 | -24.0 | 17 | | 0 | RRP | | |
| 28 | 13:55 | 0.00 | 0.00 | 106 | 105.9 | -22 | -24.0 | 17 | | 0 | RRP | | |
| 29 | 13:42 | 0.00 | 0.00 | 106 | 106.3 | -23 | -24.0 | 17 | | 0 | RRP | | |
| 30 | 11:26 | 0.00 | 0.00 | 106 | 106.2 | -22 | -24.0 | 17 | | 0 | GKB | | |
| 31 | | | | | | | | | | | | | |

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# Weekly Injectate Samples

**Kansas Lab Certificate Number** E-10146

| **Week** | **Temperature** | | **pH** | | **Chloride** | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Degrees Fahrenheit | Date | Standard Units | Date | Cl concentration (mg/l) | Date Sample Collected | Date Sampl Analysed | | |
| 1 | 65.40 | 11/06/2023 | 6.59 | 11/06/2023 | N/A | | | | |
| 2 | 62.00 | 11/13/2023 | 6.50 | 11/13/2023 | N/A | | | | |
| 3 | 54.00 | 11/20/2023 | 6.49 | 11/20/2023 | N/A | | | | |
| 4 | 51.00 | 11/27/2023 | 7.00 | 11/27/2023 | N/A | | | | |
| 5 | | | | | N/A | | | | |

## No monthly injectate samples required.

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# Quarterly Injectate Samples

**Quarter** 4
**Date Sample Collected** 10/03/2023
**Kansas Lab Certificate Number** E-10146
**Lab Name** Pace Analytical-Salina

*These samples shall be representative of injection activity and shall therefore be collected on days of injection.*

| Constituent | Value | Units |
|---|---|---|
| Calcium | 2,110.000 | mg/l |
| Chloride | 23,200.000 | mg/l |
| Conductivity | 77.100 | Mmhos |
| Magnesium | 488.000 | mg/l |
| Sodium | 15,660.000 | mg/l |
| Sulfate | 2,350.000 | mg/l |
| Total Alkalinity as CaCO3 | 336.000 | mg/l |
| Total Dissolved Solids | 54,000.000 | mg/l |
| Total Suspended Solids | 40.500 | mg/l |
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